



“Value Added Air Monitoring” in San Lorenzo Valley California

**EPA National Air Monitoring
Workshop May 2012
Denver CO**

Thanks

➤ EPA Region IX Staff

- Matt Lakin
- Meredith Kurpius
- Kate Hoag

➤ This would not been feasible without the help!

Adding Value

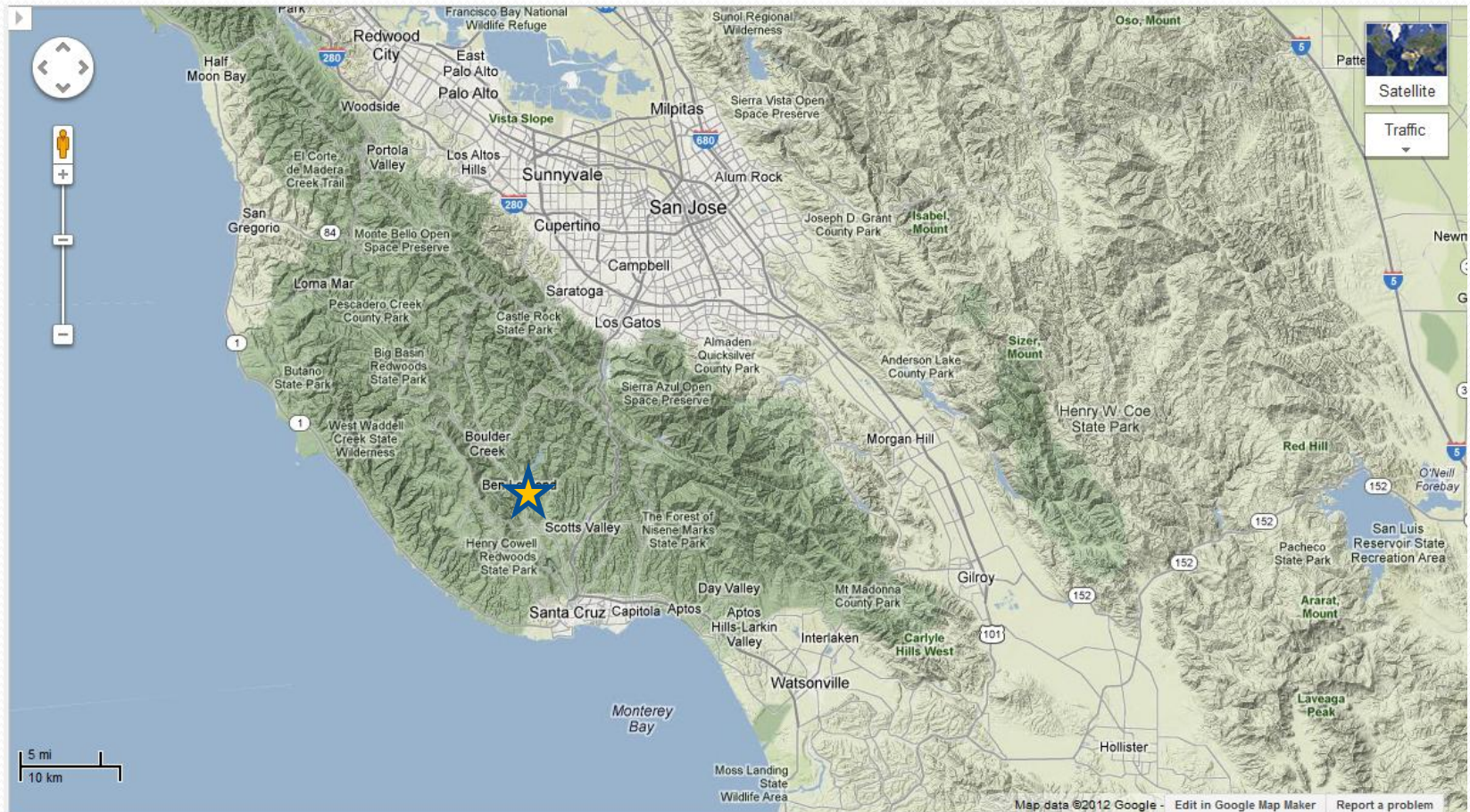
- There is more to life than filling a data base!!
- It's not 2002!
 - The debates are over.
- Timeline to developing strategies now on the order of months not years!
- Highly visible to the Public!

San Lorenzo Valley

Home of the Redwoods

- Narrow valley that is decoupled from regional meteorology
- Dense land use. ~13k residents
- Longstanding behaviors of burning wood for home heating
-
- Burning of yard waste instead of recycling

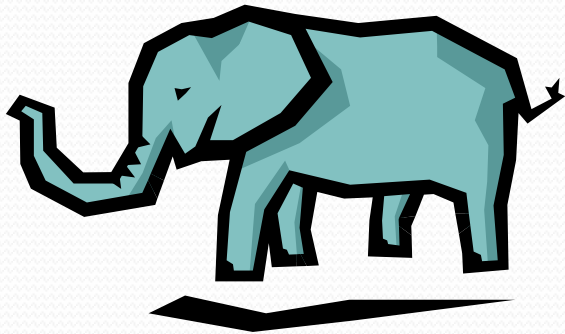
Regional View



San Lorenzo Valley



The Past

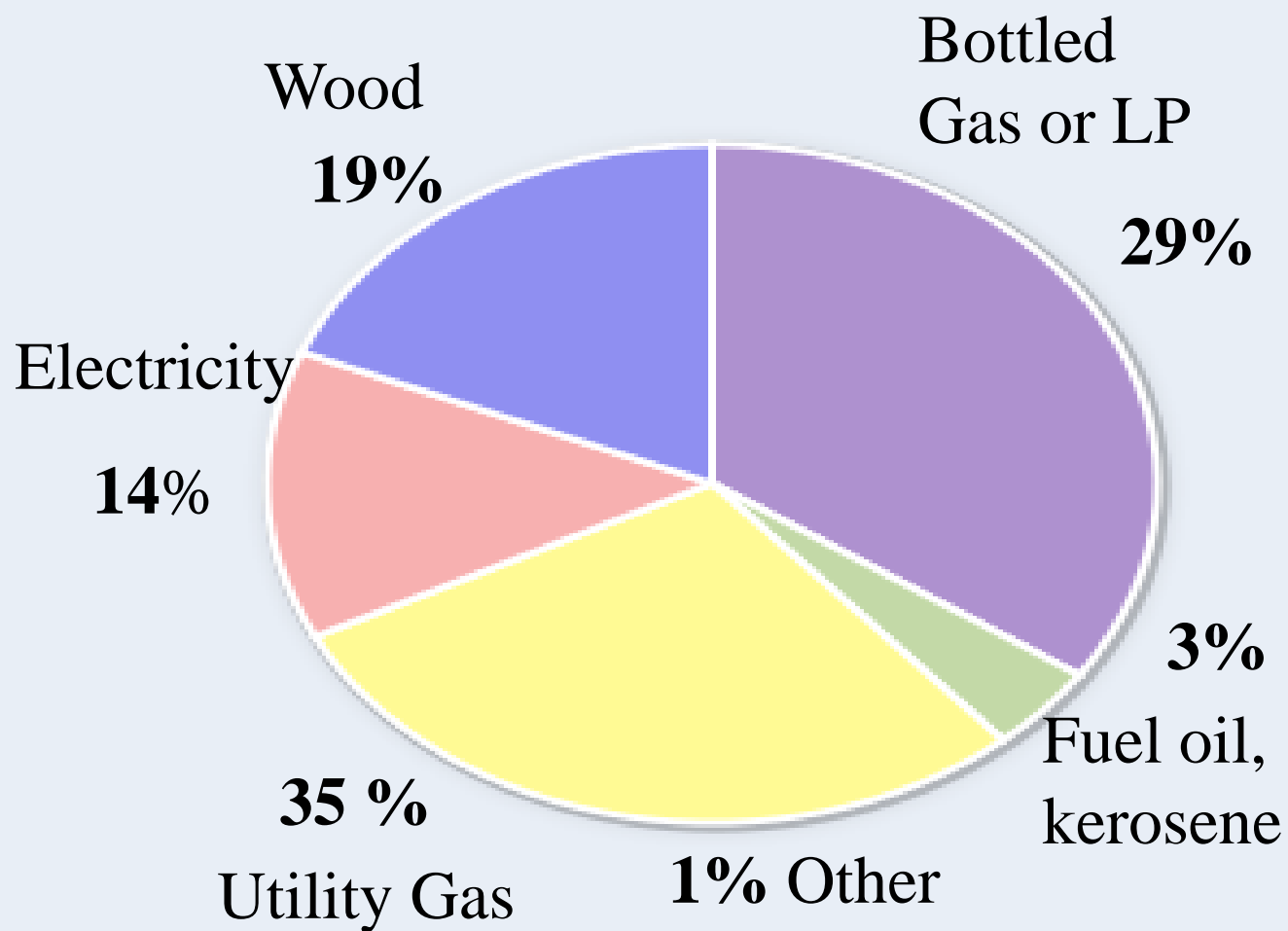


- Long history of receiving complaints from citizens
 - EPA and ARB involved
- Limited District response
 - Outreach letters
 - Enforcement
 - Stove replacements
- Past Air Monitoring Survey
 - PM₁₀ levels suggested problems
 - Technology limitations
 - Pre dated PM_{2.5} standards

Two Distinct Issues

- Residential home heating emissions
 - Many homes use wood as a sole source or primary of heat
 - ~2,600
- Outdoor Burning of Green Waste
 - Public Nuisance
 - Not driving exceedances

Home Heating Choices



Smoke Survey

Ugly



Results

- **102 Observations**
- **~86 % of all chimney's observed were above acceptable opacity levels**

Good Burn Pile



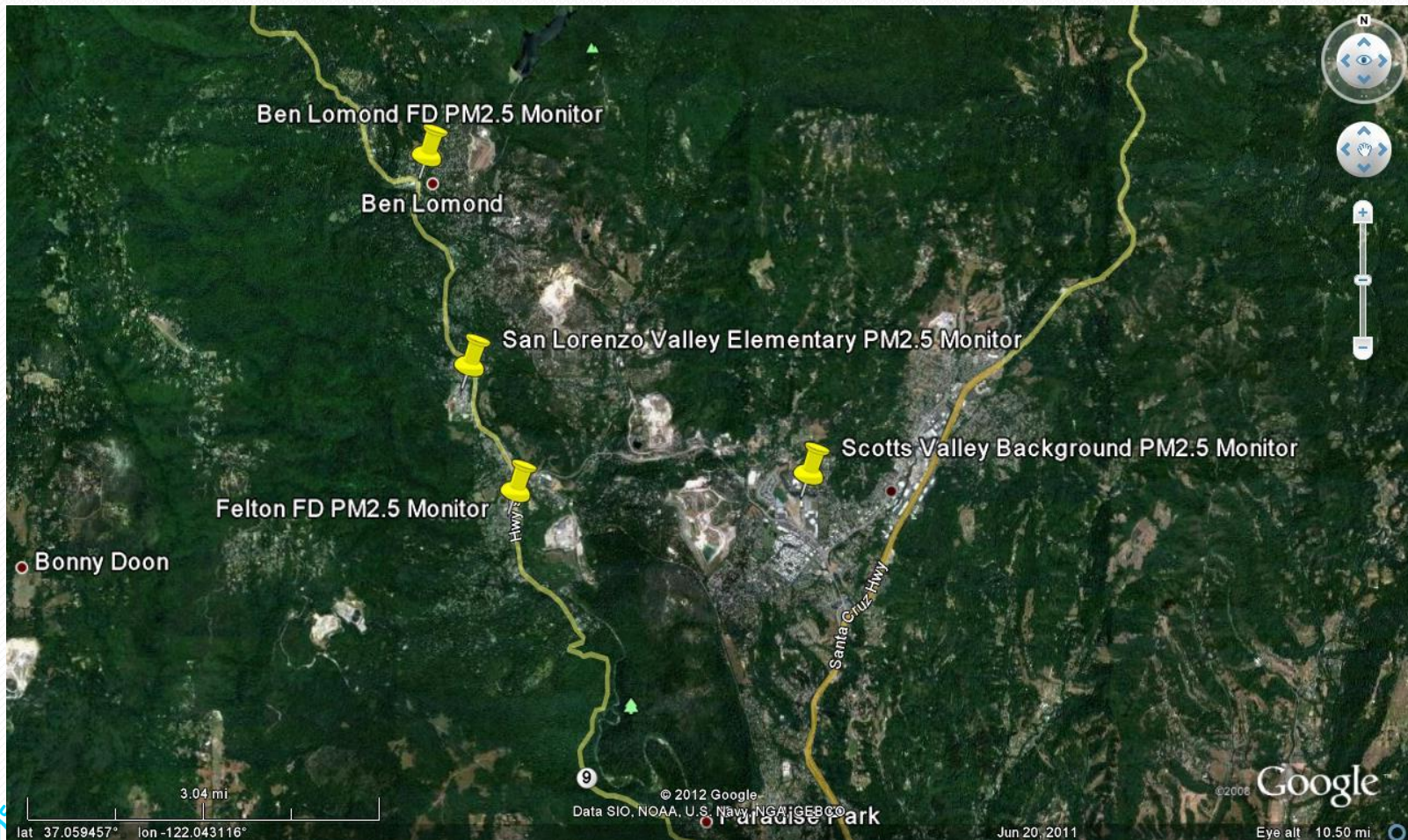
Bad Burn Pile



Established a Monitoring Network

- Four sites
 - 3 Neighborhood scale
 - 1 Middle Scale
 - To represent concentrations in many residential areas
- PM_{2.5} and Met
- November – March operation
 - Extended to April

Air Monitoring network



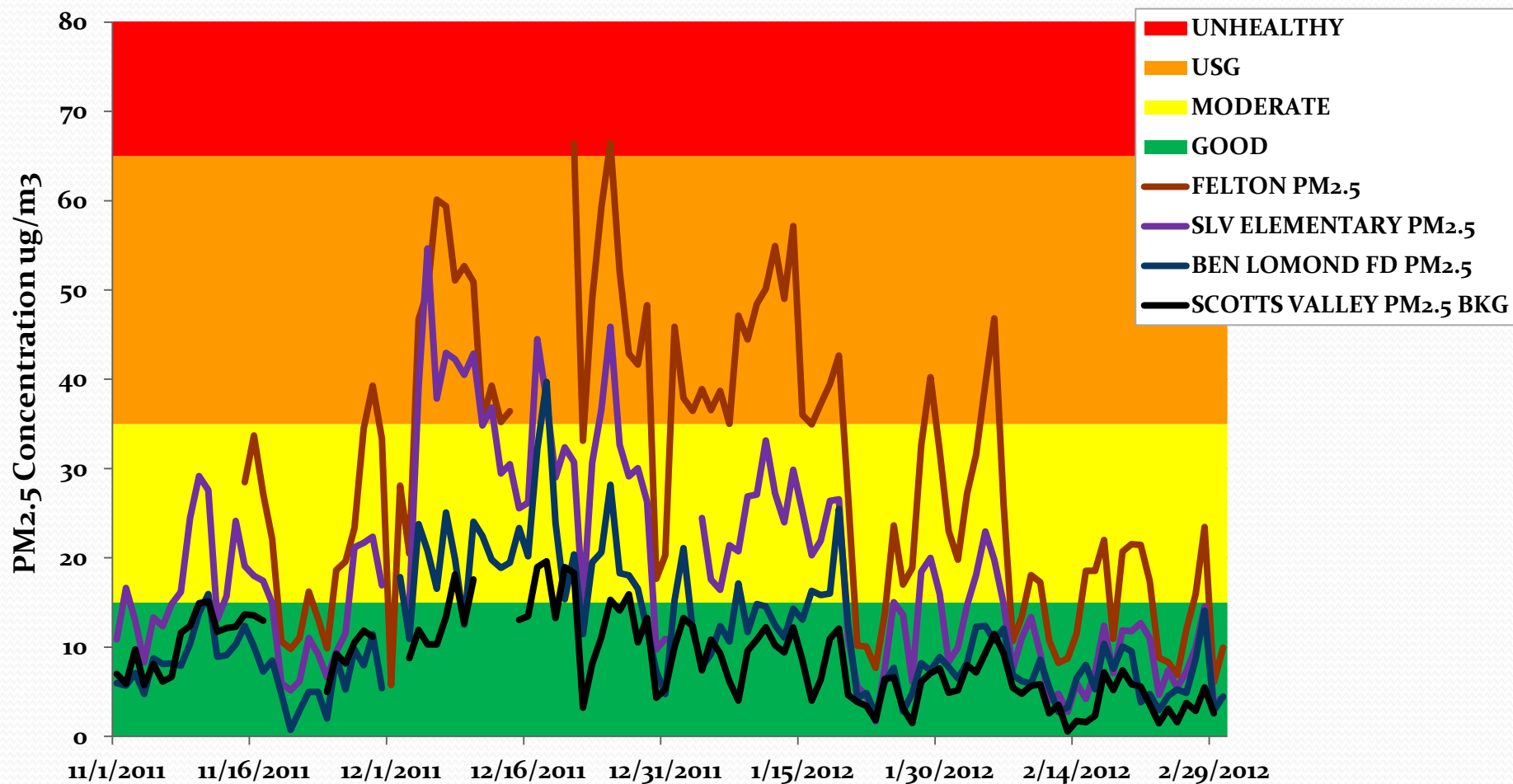
Right: Typical E-BAM PM2.5 configuration in the field with communications box in front, E-BAM particulate analyzer and inlet head in back, temperature sensor on left side, and Wind Speed/Wind Direction Sensor unit on right side.

Below: E-BAM cover opened to illustrate filter tape, nozzle assembly, and control/indicator panel.



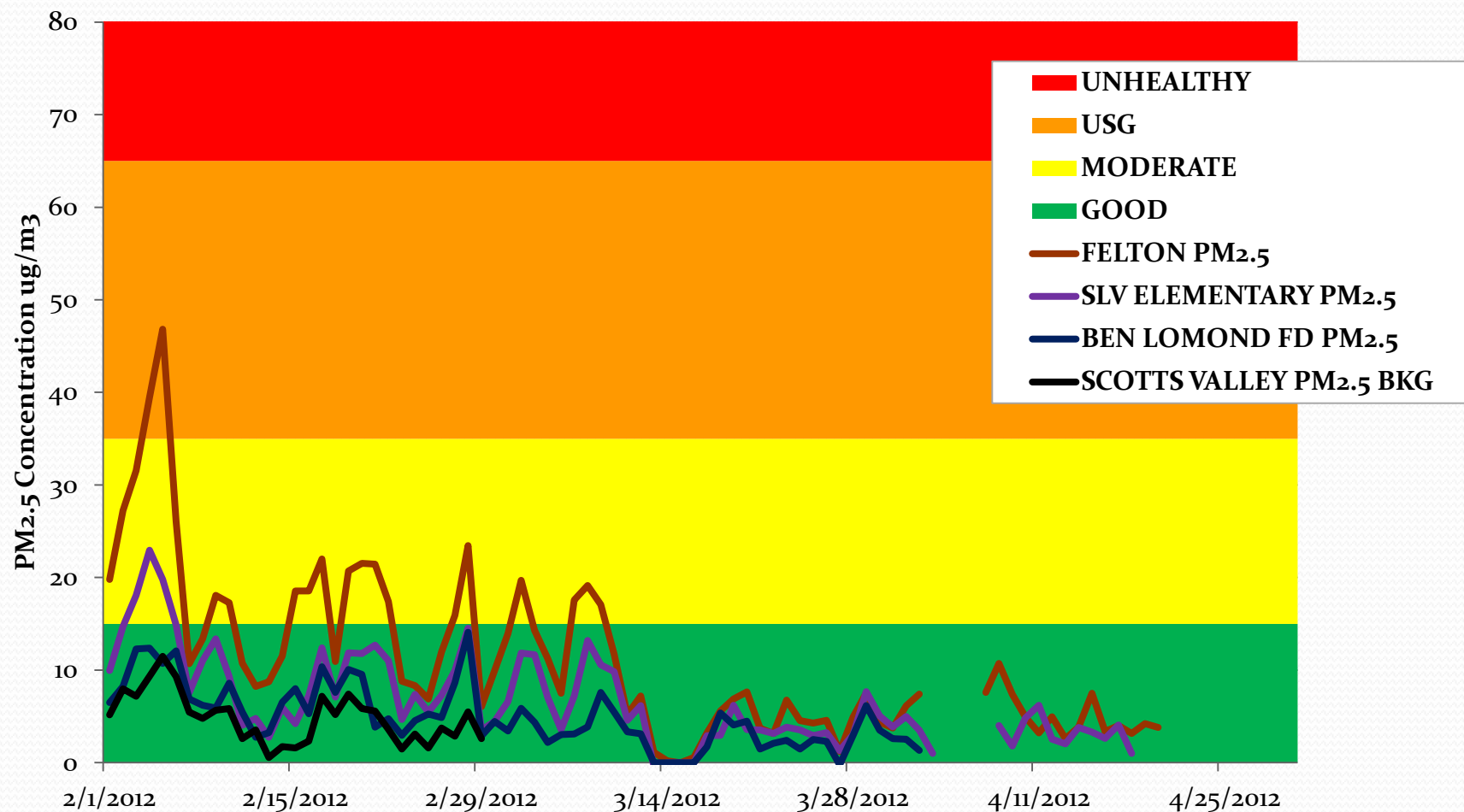
PM2.5 Daily Monitoring Results

November to February Peak Smoke Season



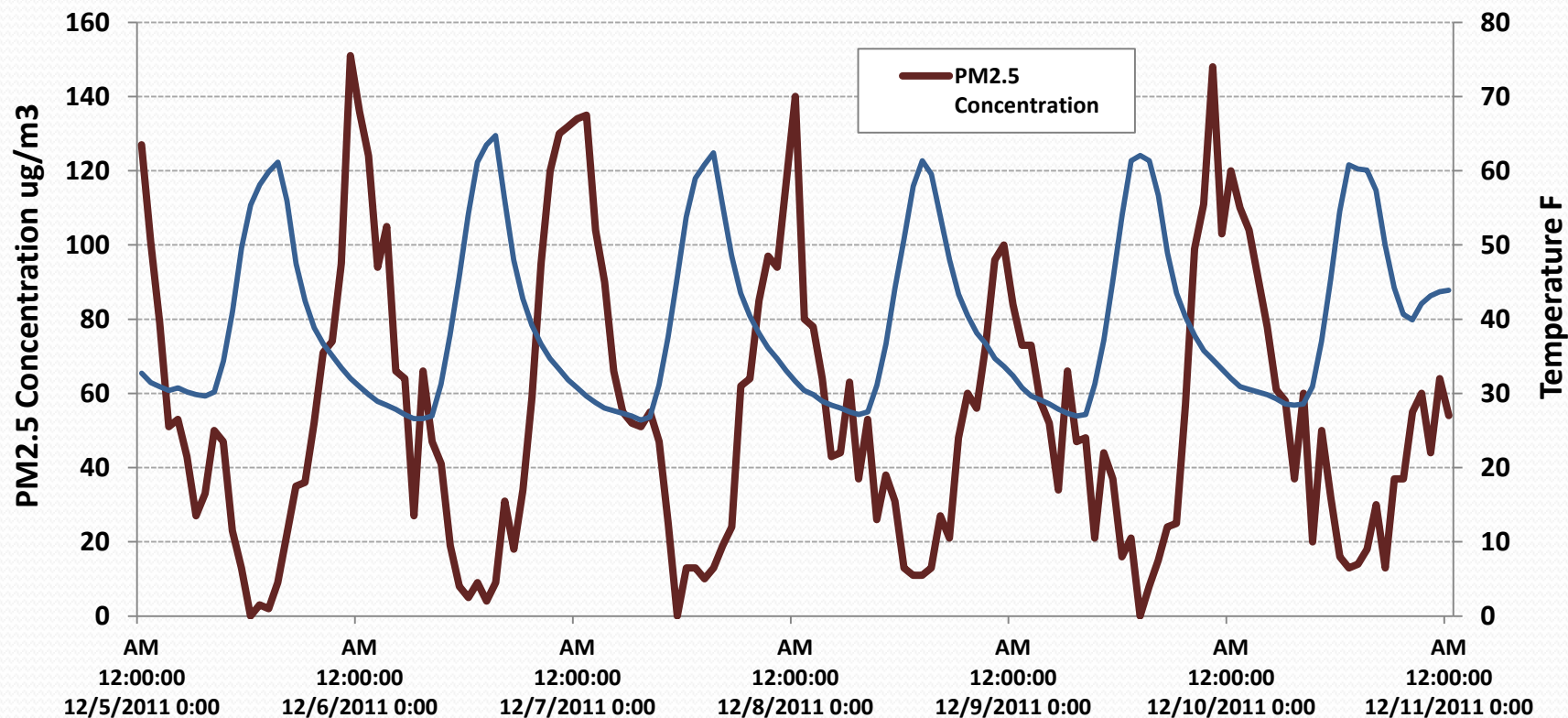
PM2.5 Daily Monitoring Results

February to April Smoke Season



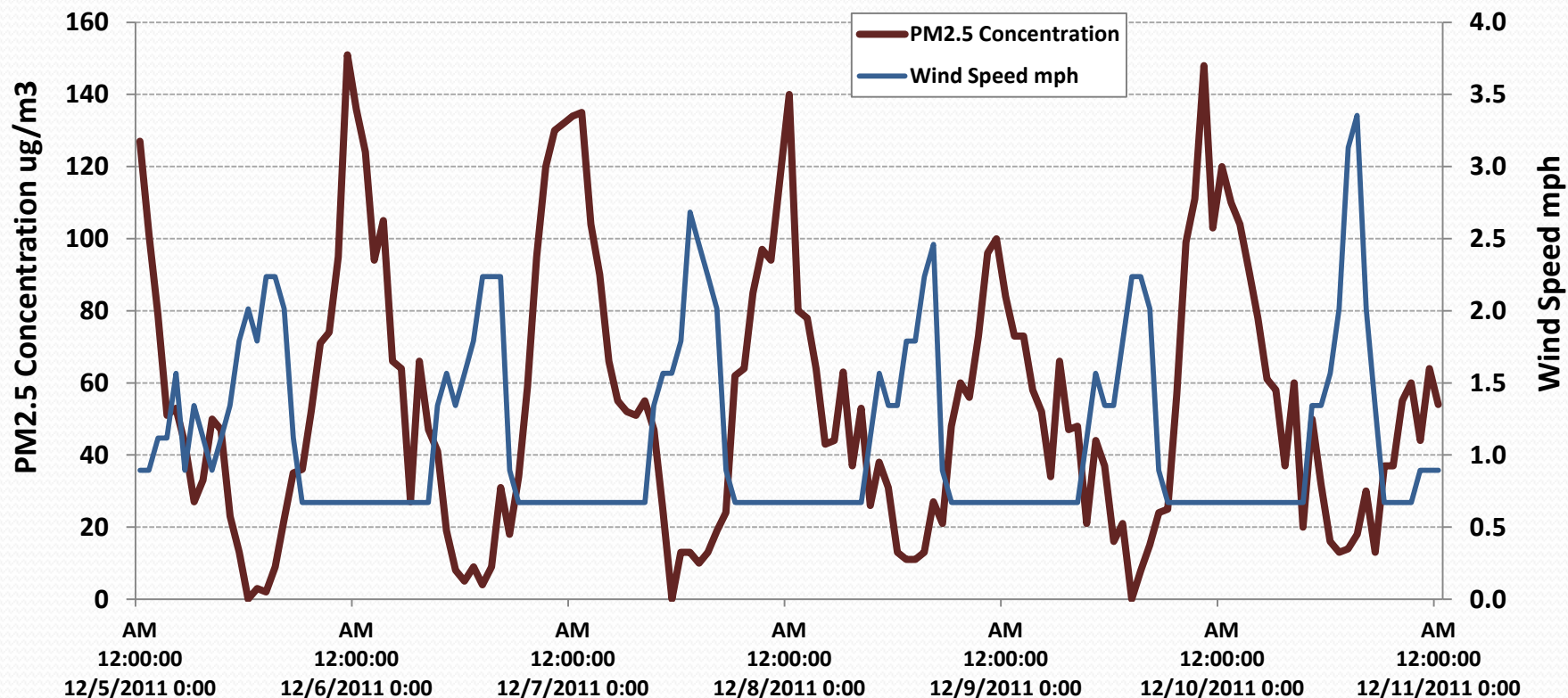
Hourly PM2.5 and Temperature

FELTON – December 5 to 10 Episode Period



Hourly PM2.5 and Wind Speed

FELTON – December 5 to 10 Episode Period



Summary (Nov-Feb)2011/12

- **Felton: 42****
- **SLV Elementary: 13, all Dec.**
- **Ben Lomond: 1**
- **Scotts Valley : 0**

**** Missing data of significance.**



Preliminary Findings

- PM2.5 levels exceed the health standards
 - Woodstove and fireplace sources
 - PM2.5 attainment issues are possible
- Backyard burns impact surrounding residents
 - Nuisance complaints
- Woodstove Replacement Program was very well received. Fully implemented.
- Curbside pickup of yard waste is not used or available to all.

As a direct result of the air monitoring

- District presented these results to our Board
- Directed to develop a plan to address the issues
- Will shape the Districts work for the next 5 to 10 years
 - Monitoring
 - Enforcement
 - Planning
 - Rule Development

Addressing the Issues

Objectives:

- Reduce pollution levels below NAAQS
 - Avoid Non-Attainment designation
- Reduce complaints to an acceptable level
- Will require a multiple year effort.

Strategies

- Public Outreach
- Enforcement
- Alternatives and Incentives
- Voluntary Curtailments
- Regulatory Changes
- Evaluation and Monitoring

Future Air Monitoring In San Lorenzo Valley

- A long term PM_{2.5} monitoring station will be set up in Felton to collect annual data and monitor potential long term changes in air quality.
- Will continue with seasonal E-BAM monitoring:
 - Boulder Creek
 - The Ben Lomond Fire Station
 - The Cal-Fire Station or the San Lorenzo Elementary School in Felton

Evaluation and Monitoring

- Critical for accountability and measuring progress
 - Use for mid course corrections as needed
- Develop short term and long term metrics (2013)
 - Air quality
 - Health based (long term)
 - Public complaints
 - Change in number of enforcement cases
- Establish semi permanent air monitoring site (Oct 2012)
 - Include seasonal air monitoring network
- Report results after 3 years, then annually



Monitoring Issues

- Serious short fall in vertical Met measurements
 - No SoDar, Radiometer, RASS or RWP
- Serious shortfall in Meteorological prediction products
 - Need mesoscale products to support Curtailment calls and daily AQI forecasting

Website Portal



MONTEREY BAY
Unified Air Pollution Control District
34563 Silver Cloud Court, Monterey, CA 93940
(831) 647-9411
[click here for map](#)

[Home](#)[Air Quality](#)[Programs](#)[Employment](#)[Forms](#)[Home](#)[Programs](#)[Air Monitoring](#)

Current Air Quality and Forecast

[Current](#)[Site](#)[Map](#)[Recent Trends](#)

Carmel Valley AMS - Good - 31 AQI - Ozone - 8PM

Hollister AMS - Good - 26 AQI - Ozone - 8PM

King City AMS - Good - 33 AQI - Ozone - 8PM

Pinnacles NM - Good - 29 AQI - Ozone - 9PM

Salinas AMS - Good - 25 AQI - Ozone - 9PM

Santa Cruz AMS - Good - 25 AQI - Ozone - 8PM

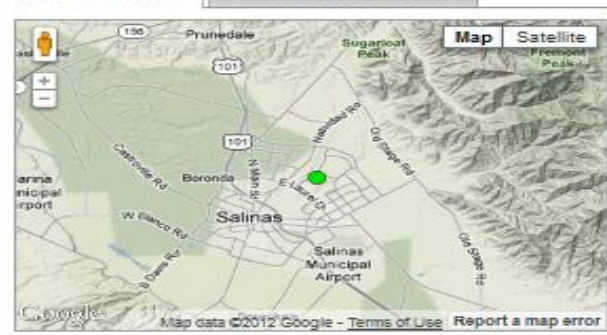
[ARB Current Burn Status](#)[Burning Information](#)

Region	24-hr 5/15/2012	48-hr 5/16/2012	72-hr 5/17/2012	96-hr 5/18/2012
#30 - High all above 3000 ft	Yes	Marginal	Favorable	Favorable
#31 - NW Coastal below 3000 ft	Marginal	Unfavorable	Favorable	Favorable
#32 - SE Coastal below 3000 ft	Marginal	Unfavorable	Favorable	Favorable
#33 - NW Inland below 3000 ft	Yes	Marginal	Favorable	Favorable

Source: PFIRS - Prescribed Fire Information Reporting System

[Forecast](#)[Discussion](#)

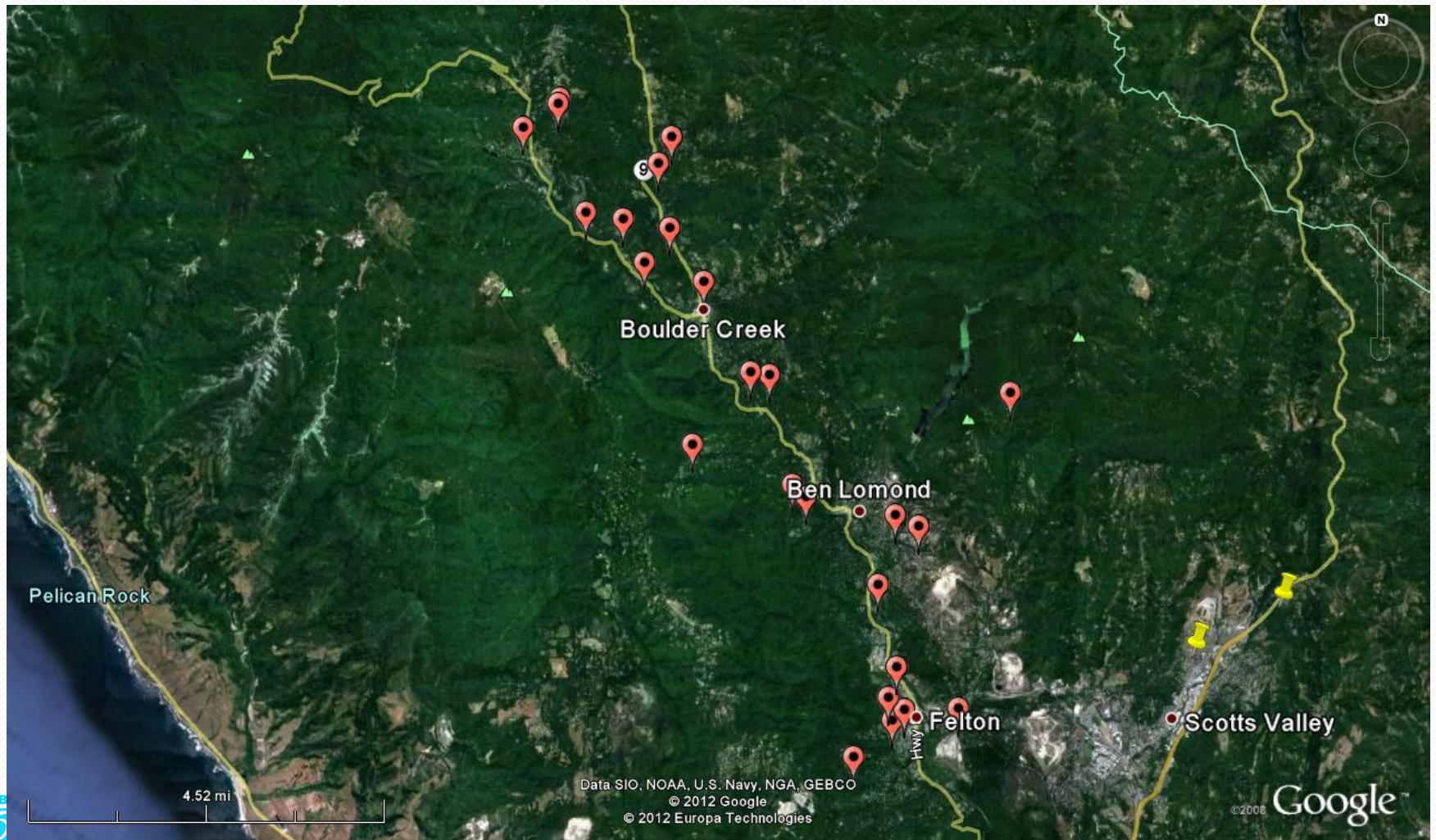
Site Name	Today	Tomorrow
Carmel Valley	PM2.5	PM2.5
Davenport	PM2.5	PM2.5
Hollister	PM2.5	PM2.5
King City	PM2.5	PM2.5
Marina/Seaside	PM2.5	PM2.5
Monterey Peninsula	PM2.5	PM2.5
Pinnacles National Monument	PM2.5	PM2.5
Salinas	PM2.5	PM2.5
San Lorenzo Valley	PM2.5	PM2.5
Santa Cruz	PM2.5	PM2.5
Scotts Valley	PM2.5	PM2.5
Watsonville	PM2.5	PM2.5

[Fort Ord Burns](#)[PM2.5 3-hour Trend](#)

Follow-up

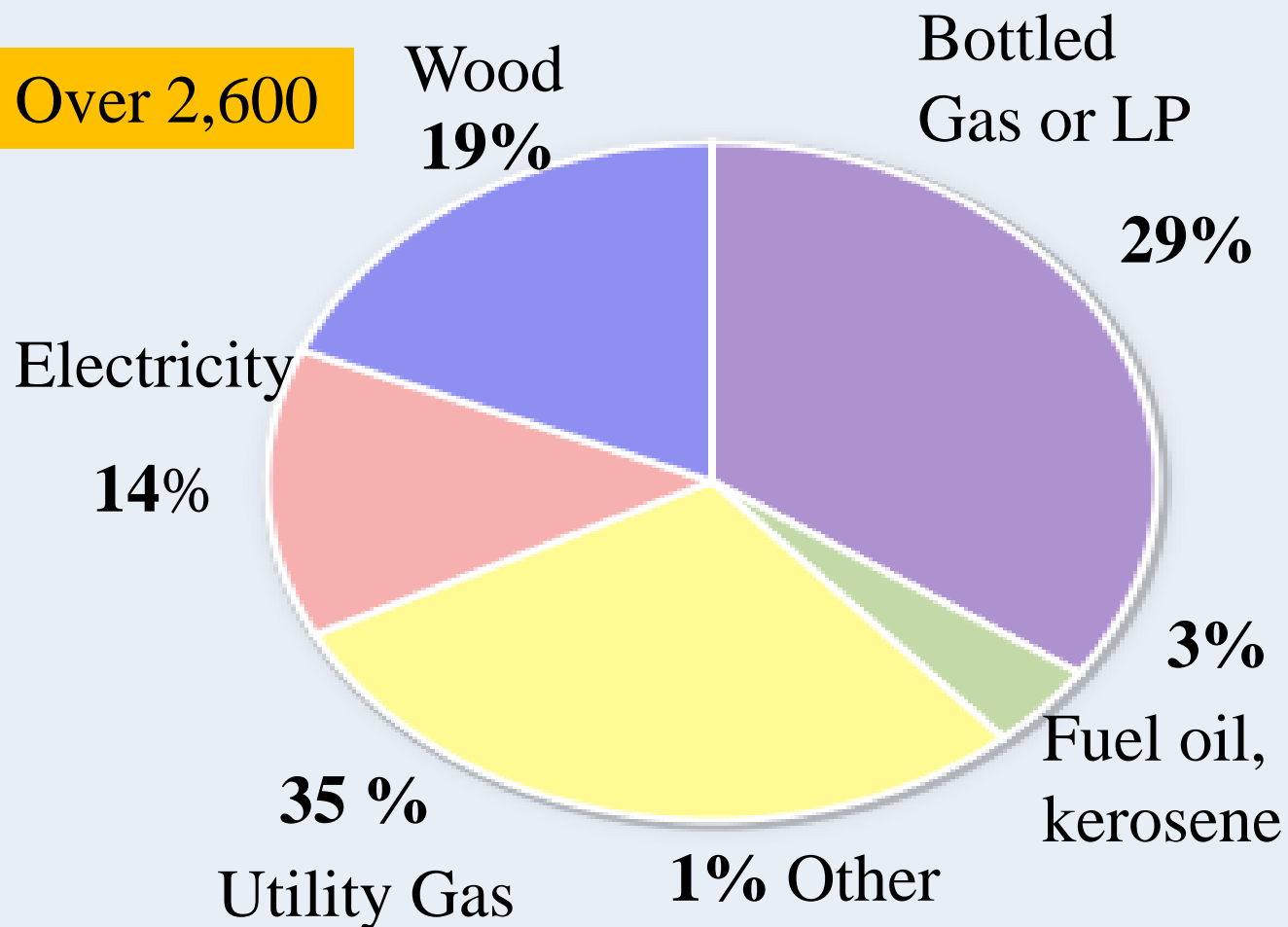
- Bill Chevalier
 - wchevalier@mbuapcd.org
- Tony Sotelo
 - tsotelo@mbuapcd.org
- Scott Norton
 - snorton@mbuapcd.org
- Tel: 831 - 647 - 9411

San Lorenzo Valley



Home Heating Choices

Over 2,600



2011 Woodstove Change-out Summary

AREA	TOTAL CHANGE- OUTS*	EPA CERTIFIED WOODSTOVES/ WS INSERTS	WOOD TO GAS OR PELLET CONVERSIONS	INCOME QUALIFIED
SAN LORENZO Valley	26	18	8	4
Boulder Creek	10	7	3	2
Felton	8	5	3	2
Ben Lomond	6	4	2	0
Brookdale	2	2	0	0
OTHER AREAS	27	13	14	0
AIR BASIN TOTAL	53	31	22 (42%)	4

2/15/2012
 * All Change-Outs
 Complete, Except
 One.



Proposed SSA Boundary

San Lorenzo Valley
General Plan Boundary 2012

